

We claim:

1. A method of safely removing one or more volatile oxidizable compounds which can form an explosive mixture with oxygen from particles (2) present in a container (1), in which a gas stream is introduced into the container (1), the gas stream takes up the oxidizable compounds from the particles (2) and a gas stream laden with the oxidizable compounds is discharged from the container (1),
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wherein
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 - oxygen is added to the gas stream which has been discharged and the oxidizable compounds present in the discharged gas stream are at least partly catalytically oxidized by means of the oxygen and
 - 15 - the oxidized gas stream forms at least part of the gas stream introduced into the container (1), so that the gas stream is circulated.
 2. A method as claimed in claim 1, wherein the particles are polymer particles (2) and the volatile oxidizable compounds are residual monomers and/or solvents remaining in the polymer particles (2) after they have been produced.
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 3. A method as claimed in claim 2, wherein the polymer particles are solid polymer granules (2), in particular polyolefin granules.
 - 25 4. A method as claimed in claim 2, wherein the particles are sprayed liquid or wax-like polymer particles.
 5. A method as claimed in any of the preceding claims, wherein the oxygen is added to the oxidizable compounds in an essentially stoichiometric amount corresponding to that required for complete oxidation.
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 6. A method as claimed in any of the preceding claims, wherein the oxygen is added in the form of air.
 - 35 7. A method as claimed in claim 6 or 7, wherein the amount of added oxygen is regulated on the basis of the content of oxygen and/or the oxidizable compound measured in the oxidized gas stream.
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8. A method as claimed in any of the preceding claims, wherein the oxidation is carried out with the aid of a catalyst whose active component comprises at least one noble metal selected from the group consisting of platinum, palladium and rhodium.
9. A method as claimed in any of the preceding claims, wherein the particles (2) are continuously introduced into the container (1) and discharged from the container (1).
10. A method as claimed in claim 8, wherein the gas stream is conveyed in countercurrent to the particles (2).
11. A method as claimed in any of the preceding claims having a preceding start-up phase in which the circuit is purged with an inert gas, in particular nitrogen.
12. A method as claimed in claim 11, wherein the oxygen content in the container (1) is increased continuously to a level of from 0.5 to 5% by volume, in particular from 1 to 4% by volume, during the start-up phase and is subsequently kept constant.
13. An apparatus for implementing the method as claimed in any of the preceding claims, comprising
- a container (1) for accommodating the polymer particles (2) having a gas inlet (3) and a gas outlet (4),
 - a catalyst unit (5) containing an oxidation catalyst for oxidizing the residual monomer by means of oxygen,
 - a gas circulation line comprising a gas outlet line (9) which connects the gas outlet (4) to the catalyst unit (5) and a return line (10) which connects the catalyst unit (5) to the gas inlet (3) and
 - an air metering unit (6) connected to the gas outlet line (9) for introducing oxygen into the gas outlet line (9).
14. An apparatus as claimed in claim 13 comprising a polymer particle inlet (6) and a polymer particle outlet (7), where the polymer particle inlet (6) and the gas inlet (3) are located on one side of the container (1) and the polymer particle outlet (7) and the gas outlet (4) are located on an opposite side of the container (1) so that the gas stream and the polymer particles (2) can be conveyed in countercurrent.

15. An apparatus as claimed in claim 13 or 14, wherein the container is a silo (1) for the storage of granulated polymer (2).
16. An apparatus as claimed in any of claims 13 to 15, wherein the oxidation catalyst comprises a bundle of conventional monolithic three-way or oxidation catalysts for automobile exhaust gas purification.
17. An apparatus as claimed in any of claims 13 to 16, wherein the catalyst unit (5) can be operated autothermally.
18. An apparatus as claimed in any of claims 13 to 17, which further comprises
- a lambda probe for measuring the oxygen content in the return line (10) and
 - a regulating unit which regulates the amount of oxygen introduced through the metering unit (6) on the basis of the oxygen content measured by means of the lambda probe.